

Easterly Waves over West Africa and the East Atlantic

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Abstract

The mean lifecycle of African easterly waves (AEWs) is investigated by examining the composite structural evolution of long-lived AEWs over West Africa and the East Atlantic. Two vortices are observed at low-levels over West Africa in association with the AEW. The first is a convectively generated vortex south of the African easterly jet near the mean position of the intertropical convergence zone which is moist and extends to mid-levels. The second is dry, constrained to low-levels, and results from the interaction of the convective vortex to the south with the sloping baroclinic zone separating the Saharan and monsoon air masses. The evolution of the northern vortex in the composite AEW is strongly constrained by the changing basic state between the continent and ocean. However, missing from the composite is a rich variety of AEW activity, behavior, and structure which is also examined.